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ADRIAN D. BATTISON, B.Sc., F.P.T.I.C.
Michael R. Williams, B.Sc., Ph.D., A.P.T.I.C.
RYAN W. DUPUIS, B. Sc., A.P.T.I.C.

1700-360 Main Street
Winnipeg, Manitoba
Canada R3C 3Z3

Telephone (204) 947- 1429
Facsimile (204) 942-5723
E-Mail: info@adeco.com

Our File: **84380-902 RWD**

FACSIMILE COVER LETTER

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME:..... Commissioner of Patents – **STEVEN N. MEYERS**

FACSIMILE NUMBER: **1-703-872-9306**

FROM:..... **Ryan W. Dupuis**

TOTAL NUMBER OF PAGES INCLUDING THIS COVER LETTER:..... **7**

DATE:..... **MARCH 7, 2005**

TELEPHONE: **(204) 947-1429**

FACSIMILE: **(204) 942-5723**

OPERATOR: **HEATHER KIRKPATRICK**

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RE: United States Patent Application no: 09/905,179
Filed January 23, 2001
System and Method for Spacecraft Attitude Control
EXAMINER –Steven N. Meyers GROUP 3600

Renewed Petition to Withdraw the Holding of Abandonment Under 37 CFR 1.81

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MAR 07 2005

ATTORNEY DOCKET NO. 84380-902/RWD
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Steven N. Meyers
Group: 3644
Applicant: Douglas A. Stanley et al.
Serial No.: 09/905,179
Filed: January 23, 2001
For: System and Method for Spacecraft Attitude Control

COMMISSIONER OF PATENTS
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
U.S.A.

Renewed Petition to Withdraw the Holding of Abandonment Under 37 CFR 1.81

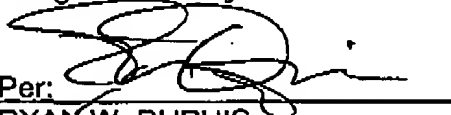
Dear Sir:

Responsive to the Decision on Petition to Withdraw the Holding of Abandonment dated January 24, 2005, please find enclosed herewith:

- (1) A copy of the original response bearing a signed Certificate of Transmission which includes the date of signing; and
- (2) A Statement Under 37 CFR 1.8(b)(3) attesting to the personal knowledge of transmitting the original response on the date indicated on the Certificate of Transmission.

We look forward to receipt of your confirmation that the abandonment has been withdrawn and that the application is in good standing.

Respectfully submitted,
Douglas A. Staley


Per: _____

Date: March 3, 2005

RYAN W. DUPUIS
Registration No. 47,345
Direct Phone 204-944-0062
Facsimile 204-942-5723

ATTORNEY DOCKET NO. 84380-902/RWD
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Steven N. Meyers
Group: 3644
Applicant: Douglas A. Stanley et al.
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United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
U.S.A.

STATEMENT UNDER 37 C.F.R. §1.8(b)(3)

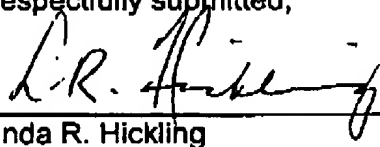
**To Accompany a Renewed Petition to Withdraw the Holding of Abandonment
Under 37 CFR 1.81**

Dear Sir:

I hereby attest that a response to the Office Action dated January 16, 2003 was timely filed by facsimile transmission on March 24, 2003 in accordance with the certification of facsimile transmission executed on said response and the facsimile confirmation report attached herewith.

Respectfully submitted,

Date: March 3, 2005


Linda R. Hickling

Confirmation Report - Memory Send

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MAR 07 2005

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FACSIMILE COVER LETTER

OUR FILE: 003/1US-CIP (5500034)

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: COMMISSIONER OF PATENTS - GALEN L. BAREFOOT
FAX NUMBER: 703-305-7687
FROM: AIKINS, MACAULAY & THORVALDSON - MURRAY E. THRIFT
TOTAL NUMBER OF PAGES INCLUDING THIS COVER LETTER: 3
DATE: MARCH 24, 2003
PHONE: 204-957-4857 E-MAIL: LindaH@aikins.com FAX: 204-957-4401

RE: United States Patent Application No: 09/805,179
Applicant: STALEY, DOUGLAS A. ET AL
Title: SYSTEM AND METHOD FOR SPACECRAFT ATTITUDE CONTROL
Examiner: GALEN L. BAREFOOT
Group: 3844
Confirmation No.: 2764

Response to Office Action dated JANUARY 16, 2003.

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OPERATOR: LINDA HICKLING
TELEPHONE: 204-957-4857
FACSIMILE: 204-957-4401

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Patent and Trademark Agents
30th Floor - 360 Main Street
Winnipeg, Mb R3C 4G1**

OUR FILE: 003/1US-CIP (5500034)

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: COMMISSIONER OF PATENTS – GALEN L. BAREFOOT

FAX NUMBER:..... 703-305-7687

FROM: AIKINS, MACAULAY & THORVALDSON – MURRAY E. THRIFT

TOTAL NUMBER OF PAGES INCLUDING THIS COVER LETTER:.....3

DATE: **MARCH 24, 2003**

PHONE:..... 204-957-4857 E-MAIL:..... LindaH@aikins.com FAX:..... 204-957-4401

RE: United States Patent Application No:09/905,179
Applicant:STALEY, DOUGLAS A. ET AL.
Title:SYSTEM AND METHOD FOR SPACECRAFT ATTITUDE CONTROL
Examiner:GALEN L. BAREFOOT
Group:3644
Confirmation No.:2754

Response to Office Action dated JANUARY 16, 2003.

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TELEPHONE: **204-957-4857**
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Examiner: BAREFOOT, Galen L. Attorney Docket No. 003/1US-CIP (5500034)
Art Group: 3644
Applicant: STALEY, Douglas A. et al.
Serial No.: 09/905,179
Filed: January 23, 2001
Confirmation No.: 2754
For: SYSTEM AND METHOD FOR SPACECRAFT ATTITUDE CONTROL

BOX NON-FEE AMENDMENT

COMMISSIONER OF PATENTS
Washington, D.C., 20231

Dear Sir:

This is in response to the Official Action mailed 16 January 2003.

The allowance of Claims 1 through 13 and 22 through 24 is noted with gratitude.

Claim 21 has been rejected as anticipated by Bender et al. Reconsideration is respectfully requested. Claim 21 reads as follows:

"21. A momentum management system for attitude control of a spacecraft, the system having:

a rotor drive having an output rotatable about a drive axis at a variable drive output speed;

a gimbal assembly connected to the drive output;

a momentum wheel rotor rotatable about a rotor axis for storing angular momentum, the rotor being mounted on the gimbal to be rotated about the drive axis by the rotor drive and for tilting movement about transverse axes orthogonal to the drive axis;

a torque generation device for tilting the rotor about the transverse axes;

a sensor for measuring the speed of the rotor rotation about the rotor axis and generating a sensor output representative of said speed; and

drive control means responsive to the sensor output for varying the drive output speed so as to maintain the speed of the rotor rotation substantially constant."

Thus, according to this claim, the sensor measures the speed of the high inertia rotor about the rotor axis. The rotor speed is controlled using that sensed speed. This is different than other systems that sense the motor speed and use the sensed motor speed in the

control loop to maintain a particular angular velocity. The present system uses a rotating gimbal assembly. With the gimbal assembly, if the wheel were to be driven at a constant motor speed as in the prior art, this would result in rotor oscillations at twice the spin rate causing large loads on the gimbal flexors. The claimed system for controlling the speed to keep the rotor speed constant results in the motor speed oscillating instead of the rotor speed. Since the moment of inertia of the motor coupled with the bearing is very small in comparison to that of the rotor, the resulting oscillation has a negligible effect on gimbal loading and does not significantly affect rate sensing measurements. With reference to Bender et al., this patent describes a momentum wheel platform and steering mechanism based on a triangular shaped momentum wheel platform that is adjustable in tilt angle using jack screws located at the three corners of the platform. Bender et al. does not include a gimbal assembly, an essential element of Claim 21, it does not apparently measure the speed of rotor rotation about the rotor axis as opposed to the drive axis of the rotor drive. It discloses no control means for varying the drive output speed so as to maintain the speed of rotor rotation about the rotor axis substantially constant.

It is therefore believed evident that Claim 21 is not anticipated by Bender et al. It is further submitted that Bender et al. is not even remotely suggestive of the system defined in Claim 21. Withdrawal of this rejection and allowance of Claim 21 are respectfully requested.

Respectfully submitted,

DOUGLAS A. STALEY ET AL.

Per: 

MURRAY E. THRIFT

Registration No. 27,527

Direct telephone 204-957-4856

e-mail: thrift@aikins.com

Facsimile 204-957-4401

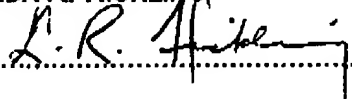
March 24, 2003

MET/lrh

CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent And Trademark Office on the date shown below.

LINDA R. HICKLING



DATE: March 24, 2003